Molecules **2010**, *15*, 4784-4791; doi:10.3390/molecules15074784

OPEN ACCESS

molecules

ISSN 1420-3049

www.mdpi.com/journal/molecules

Communication

Palladium(II) Complexes of NS Donor Ligands Derived from Steroidal Thiosemicarbazones as Antibacterial Agents

Abdullah M. Asiri [1,2] and Salman A. Khan [1,*]

[1] Chemistry Department, Faculty of Science, King Abdul Aziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia

[2] The Center of Excellence for Advanced Materials, King Abdul Aziz University, Jeddah 21589, P.O. Box 80203, Saudi Arabia

* Author to whom correspondence should be addressed; E-Mail: sahmad_phd@yahoo.co.in.

Received: 13 May 2010; in revised form: 28 May 2010 / Accepted: 9 June 2010 / Published: 8 July 2010

Abstract: We have investigated the antibacterial activity of some new steroidal thiosemicarbazones and their Pd(II) metal complexes were prepared by the reaction of the thiosemicarbazones with $[Pd(DMSO)_2Cl_2]$. The steroidal thiosemicarbazones were prepared by the reaction of thiosemicarbazides with a steroidal ketone. The structures of these compounds were elucidated by IR, ^{1}H-NMR, ^{13}C-NMR, FAB mass spectroscopic methods, elemental analyses and TGA analysis. The antibacterial activity of these compounds were tested *in vitro* by the disk diffusion assay against two Gram-positive and two Gram-negative bacteria. The results showed that steroidal complexes are better inhibitors of both types of the bacteria (Gram-positive and Gram-negative) as compared to steroidal thiosemicarbazones. Compound **Ia** displays remarkable antibacterial activity as compared to amoxicillin.

Keywords: thiosemicarbazone; palladium (II); antibacterial activity; amoxicillin